

FRAMEWORK FOR SUSTAINABLE TVET-TEACHER EDUCATION
PROGRAM IN MALAYSIA PUBLIC UNIVERSITIES

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To my beloved family especially my parent for your patient and kindness. To my supervisor and co-supervisor for your guidance and inspiration. To my friends for always supporting me in various ways. This is for you.



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ABSTRACT

Studies had stated that less attention was given to the education aspect, such as teaching and learning in planning for improving the TVET system. Due to the 21st Century context, the current paradigm of teaching for the TVET educators also has been reported to be fatal and need to be shifted. All these disadvantages reported hindering the country from achieving the 5th strategy in the Strategic Plan for Vocational Education Transformation to transform TVET system as a whole. Therefore, this study aims to develop a framework for sustainable TVET Teacher Education program in Malaysia. This study had adopted an Exploratory Sequential Mix-Method design, which involves a semi-structured interview (phase one) and survey method (phase two). Nine experts had involved in phase one chosen by using Purposive Sampling Technique. As in phase two, 118 TVET-TE program lecturers were selected as the survey sample chosen through random sampling method. After data analysis in phase one (thematic analysis) and phase two (Principal Component Analysis), eight domains and 22 elements have been identified for the framework for sustainable TVET-TE program in Malaysia. This framework was identified to embed the elements of 21st Century Education, thus filling the gap in this research. The research findings also indicate that the developed framework was unidimensional and valid for the development and research regarding TVET-TE program in Malaysia. Lastly, it is in the hope that this research can be a guide for the nations in producing a quality TVET teacher in the future.

ABSTRAK

Kajian lepas telah menyatakan bahawa perhatian kurang diberikan kepada aspek pendidikan seperti pengajaran dan pembelajaran dalam perancangan untuk memperbaiki sistem TVET. Berikutan keperluan abad ke-21, paradigma pengajaran semasa untuk pendidik TVET juga dilaporkan ketinggalan dan perlu dimurnikan. Kesemua kelemahan ini menghalang negara daripada mencapai strategi ke-5 dalam Rancangan Strategik untuk Transformasi Pendidikan Vokasional dalam mengubah sistem TVET secara keseluruhan. Oleh itu, kajian ini bertujuan untuk membangunkan kerangka program Pendidikan Guru TVET yang mampan di Malaysia. Kajian ini telah menggunakan *Exploratory Sequential Mixed Method*, yang melibatkan temubual separa berstruktur (Fasa satu) dan kaedah tinjauan (Fasa dua). Sembilan pakar terlibat dalam Fasa satu yang dipilih dengan menggunakan Teknik Pensampelan Bertujuan. Dalam Fasa dua, 118 pensyarah program Pendidikan Guru TVET dipilih sebagai sampel kajian yang dipilih melalui kaedah pensampelan rawak. Selepas analisis data dalam Fasa satu (analisis tematik) dan Fasa dua (Analisis Komponen Utama), lapan domain dan 22 elemen telah dikenalpasti untuk kerangka program Pendidikan Guru TVET yang mampan di Malaysia. Kerangka ini telah dikenal pasti menerapkan unsur-unsur Pendidikan Abad ke-21. Penemuan penyelidikan juga menunjukkan bahawa kerangka yang dibangunkan adalah unidimensional dan sah untuk pembangunan dan penyelidikan mengenai program Pendidikan Guru TVET di Malaysia. Akhir sekali, adalah diharapkan bahawa penyelidikan ini dapat menjadi panduan dalam menghasilkan guru TVET yang berkualiti pada masa akan datang.

TABLE OF CONTENTS

TITLE	v
DECLARATION	iv
DEDICATION	iiiv
ACKNOWLEDGEMENT	iv
ABSTRACT	v
ABSTRAK	vi
TABLE OF CONTENTS	vii
LIST OF TABLES	xi
LIST OF FIGURES	xiv
LIST OF SYMBOL AND ABBREVIATION	xv
LIST OF APPENDIX	xvi
CHAPTER 1 INTRODUCTION	1
1.1 Introduction	1
1.2 Background of Problem	3
1.3 Statement of Problem	11
1.4 Research Objective	12
1.5 Research Question	12
1.6 Conceptual Framework	13
1.7 Scope of Research	14
1.8 Limitation of Research	15
1.9 Operational Definition	15

1.9.1	TVET Teacher-Education Program	15
1.9.2	Sustainability	16
1.9.3	Domain of Sustainable TVET-TE Framework	16
1.9.4	Element of Sustainable TVET-TE Framework	16
1.10	Summary	17
CHAPTER 2	LITERATURE REVIEW	18
2.1	Introduction	18
2.2	Program Sustainability	18
2.3	21 st Century Education	23
2.4	TVET Teacher Education Programme	26
2.4.1	Malaysia Perspective	27
2.4.2	Global Perspective	32
2.5	Frameworks on TVET Teacher Education	37
2.5.1	Local Frameworks on Teacher Education Programme	37
2.5.2	International Frameworks on Teacher Education Programme	38
2.5.3	Gap on the Teacher Education Programme Frameworks	51
2.6	Summary	55
CHAPTER 3	METHODOLOGY	56
3.1	Introduction	56
3.2	Research Design	56
3.3	Research Procedure	59
3.3.1	Phase one (identification and verification of framework)	59
3.3.2	Phase two (framework validation)	60
3.4	Population and Sampling	62
3.4.1	Phase one: Interview participant	62
3.4.2	Respondent for phase two	64
3.5	Research Instrument	67

3.5.1	Phase one: Interview Protocol	67
3.5.2	Phase two: Questionnaire (Survey Method)	68
3.6	Validity and reliability	68
3.6.1	Phase one: interview protocol	70
3.6.2	Phase Two: Questionnaire	71
3.6.3	Pilot Test	72
3.7	Data Collection	76
3.7.1	Data collection for phase one (identification and verification of framework)	76
3.7.2	Data collection for phase two (framework validation)	76
3.8	Data Analysis	77
3.8.1	Data analysis for phase one (identification and verification of framework)	77
3.8.2	Data analysis for phase two (framework validation)	82
3.9	Summary	84
CHAPTER 4 DATA ANALYSIS		85
4.1	Introduction	85
4.2	Data analysis for phase one (identification of domains and elements)	85
4.2.1	Data analysis for phase one: What are the domains and elements of sustainable framework for TVET-TE Program in Malaysia?	86
4.2.2	Reporting for thematic analysis	92
4.2.3	Verification (Consensus of experts)	107
4.3	Data analysis for phase two (framework validation)	111
4.3.1	Data analysis for phase two: Do the domains and elements of the	

	sustainable framework for TVET-TE program in Malaysia is validated and unidimensional?	111
4.4	Summary	119
CHAPTER 5 DISCUSSION AND RECOMMENDATION		120
5.1	Introduction	120
5.2	Domains and Elements for Framework for Sustainable TVET-TE Program in Malaysia	120
5.2.1	Criteria of sustainable curriculum	121
5.2.2	Criteria of sustainable leadership	122
5.2.3	Criteria of sustainable management system	124
5.2.4	Criteria of sustainable TVET-TE lecturer	126
5.2.5	Role of institution – TVET-TE faculty	128
5.2.6	Role of institution – TVET-TE lecturer	131
5.2.7	Role of government	133
5.2.8	Role of industry	135
5.3	Validated Framework for Sustainable TVET-TE program in Malaysia	137
5.4	Summary	142
5.5	Recommendation	142
5.5.1	Ministry of Education Malaysia	143
5.5.2	Faculty of Technical and Vocational Education	143
5.5.3	Industry	143
5.6	Future study	144
5.7	Conclusion	144
REFERENCES		146

LIST OF TABLES

2.1	Provider for TVET-TE under MoE and private sector	28
3.1	Details of experts	63
3.2	The PUs with TVET-TE Program and the numbers of TVET-TE lecturers	64
3.3	The calculation of the sample size for sub-sample	66
3.4	The location of PUs with TVET-TE Program	67
3.5	The description of section in questionnaire	68
3.6	The interpretation of Cronbach's Alpha score	72
3.7	Statistical summary for reliability and separation index item-person	73
3.8	List of item drop with the MNSQ value	74
3.9	Item standardized residual value	75
3.10	Summary for statistical analysis for pilot test	75
3.11	Likert Scale and Fuzzy scale for Level of Agreement	81
3.12	Mean Score interpretation (Landell, 1997)	83
3.13	Summary of the analysis	83
4.1	Number of codes for each categories	87
4.2	Arranged Codes, Categories and Themes	88
4.3	List of domain and element for sustainable TVET-TE program	92
4.4	Summary of interview data for element TVET oriented	93
4.5	Summary of interview data for element 21 st Century oriented	94
4.6	Summary of interview data for knowledgeable in TVET and academic	95
4.7	Summary of interview data for element high credibility	95

4.8	Summary of interview data for element funding & monetary system	96
4.9	Summary of interview data for support system	96
4.10	Summary of interview data for element implementation system	97
4.11	Summary of interview data for element adaptable to changes	98
4.12	Summary of interview data for element interactive skill set	98
4.13	Summary of interview data for element partnership	99
4.14	Summary of interview data for element administration	100
4.15	Summary of interview data for element support	100
4.16	Summary of interview data for element relationship with student	101
4.17	Summary of interview data for element upgrade and reskilling	102
4.18	Summary of interview data for pedagogical and classroom management	102
4.19	Summary of interview data for element relationship with the environment	103
4.20	Summary of interview data for element improving the reskilling and upskilling for TVET-TE lecturers	104
4.21	Summary of interview data for improving the perception and treatment towards TVET-TE system	104
4.22	Summary of interview data for element provide current information to TVET-TE system	105
4.23	Summary of interview data for element giving advice in management of TVET-TE program	106
4.24	Summary of interview data for element provide training to the students and TVET-TE lecturers	107
4.25	Summary of Item Analysis for Each Domain.	108
4.26	The summary of criteria for data interpretation	109
4.27	Summary of rejected item	109
4.28	The rank for domains based on Average Fuzzy Number	110

4.29	The top three ranking item for each domains	110
4.30	Mean score value for each domain	111
4.31	Mean score for elements	112
4.32	Summary of Outfit MNSQ values for rejected item	113
4.33	PCA for domain criteria for sustainable curriculum	114
4.34	PCA for domain criteria for sustainable leadership	114
4.35	PCA for domain criteria for sustainable TVET-TE lecturer	115
4.36	PCA for domain criteria for sustainable management system	115
4.37	PCA for domain role institution - TVET-TE faculty	116
4.38	PCA for domain role for institution - TVET-TE lecturer	116
4.39	PCA for domain role for government	116
4.40	PCA for domain role for industry	117
4.41	Summary of PCA for all domains	117
5.1	The domains and elements for framework for sustainable TVET-TE program in Malaysia	140



LIST OF FIGURES

1.1	Conceptual Framework for the research	14
2.1	The S-Curve adoption of innovation	20
2.2	The context and concern and the key aspects in curriculum for the NCFTE	43
2.3	The Three Approaches in the ICT-CST by UNESCO (2008)	50
2.4	The Matric of ICT-CST Framework by UNESCO (2008)	51
3.1	Figure 3.1 The Simplified Research Design	57
3.2	Exploratory Sequential Design by Cresswell and Clark (2011)	58
3.3	The operational framework for this study	61
3.4	The Stratified Random Sampling technique	66
3.5	Process in Analysing the Interview	77
3.6	Coding System	80
3.7	Process in analysing data for verification	80
3.8	The Formula for Threshold, d	81
3.9	Formula of Average of Fuzzy Number	82
4.1	Summary of PCA for domains in framework for sustainable TVET-TE Program in Malaysia public universities	118
5.1	The framework for sustainable TVET-TE program in Malaysia public universities	141

LIST OF SYMBOL AND ABBREVIATION

TVET	-	Technical and Vocational Education and Training
TVET-TE	-	Technical and Vocational Education and Training – Teacher Education
ICT	-	Information and Communication Technologies
MoE	-	Ministry of Education
MQA	-	Malaysia Qualification Agency
CIAST	-	Centre for Instructor and Advanced Skill Training
NEP	-	National Education Philosophy
MBE (HE)	-	Malaysia Blue Print (Higher Education)
NCTFE	-	National Council for Teacher Education
AUN-QA	-	ASEAN University Network Quality Assurance
PCA	-	Principal Component Analysis
PU	-	Public University
PTMEA-CORR	-	Point Measure Correlation
MNSQ	-	Mean Square

LIST OF APPENDIX

A	Gap analysis on existing framework	159
B	Agreement Form As Interview Participant	161
C	Interview Protocol	163
D	Questionnaire For Experts' Consensus	165
E	Questionnaire For Survey Method	175
F	Rasch Model Analysis For Pilot Study	183
G	List Of Open Coding For Thematic Analysis	194
H	Fuzzy Formula Analysis For Experts' Consensus	209
I	Rasch Model Analysis For Survey Method	206



PTTA UTHM
PERPUSTAKAAN TUNKU TUN AMINAH

CHAPTER 1

INTRODUCTION

1.1 Introduction

Teacher, in general is a profession that plays a crucial part in the development of all nations in the world. From the early childhood development up to the adult learners, teachers are required in providing guidance and mentoring to the learners based on the respective requirement. With the appropriate knowledge, skills, and attitude, teachers will contribute to the achievement of the country's development plan. With this in mind, the contribution of TVET teachers in TVET development plan is crucial. Previous researches had indicated that teachers and trainers from the Vocational Education and Human Resources Development contribute in the development of the skills workers who are the backbone of each economy worldwide (Grollmann & Rauner, 2007). Agreeing with this, Schroder (2013) also believed that TVET teachers are key aspect for a quality breakthrough in TVET system. As aforementioned, the skilled workers are the main players in achieving the country's aim in becoming a developed country with high income. Therefore, the significance of this profession is unquestionable for the holistic development of TVET.

Like any other teacher education (or training) institutions, TVET Teacher-Education (TVET-TE) program also aim to produce quality TVET teachers. The development of human resources in the TVET system had been highlighted in several formal documents. For instance, the TVET Transformation Plan under the 5th Strategy had declared to improve the capability of the Vocational Education organization in Ministry of Education Malaysia (Ministry of Education Malaysia, 2011) which can be

achieved by transforming the organization itself into a more professional organization. Likewise, the Malaysia Education Blueprint (Higher Education) had as well listed 10 shifts that will improve the higher education system in general with the 4th shift focusing on the TVET graduates while the 2nd shift focusing on the talent excellent aiming towards the teachers (Ministry of Education Malaysia, 2015b). This strengthens the importance to improve the quality and performance of TVET teachers to achieve these national plans. From an economic perspective, the professional development of TVET teachers is also highlighted within the 11th National Plan as one of the strategies to improve the human capital development to be a developed country (Economic Plan Unit, 2015a). The effort of the Malaysia government in improving TVET teachers with all these plans had been proof of the importance of this profession to the development of the country.

Generally speaking, the curriculum for TVET-TE program is different from other teacher education program since TVET required more hands-on skills than theoretical knowledge. Schroder (2013) elaborated this by stating that the knowledge, skills and competences within vocational pedagogy aims for employability that demands a learning teaching concept that incorporates world-of-work tasks holistically. Students must be able to acknowledge certain skills, which were certified at the end of the educational period. These are the criteria for any TVET program, which is to have a certificate on the related skills. Even the TVET teachers are required to have the certificate on the skills of the content, not just in skills in teaching which lead to an extra requirement for TVET teachers.

This extra requirement on TVET teachers calls for strong collaboration and participation of stakeholders other than the TVET-TE institution. Mongkhonvanit (2017) listed three main stakeholders in TVET institution, which are the vocational institute, government, and companies. The essential element in this tripartite system is the collaboration for mutual trust and benefits of all the stakeholders. Agreed with this, Chen, Chan, Hung and Hsiang (2016) also stated that a successful collaboration of the stakeholders requires partners to sense mutual benefits from the networking. The efforts on achieving this mutual understanding in collaboration need to be focused by all the stakeholders including the institution, government and the industries. As for the government of Malaysia, this collaboration with important stakeholders were strengthen by providing a quality educational system. This need to be done as early as the childhood education and through rebranding and profiling of TVET in order to

produce quality graduates (Economic Plan Unit, 2015b). This can ensure the sustainability of the program through regulation of information that will keep updating the program holistically.

On the other hand, sustainability at the time is not a new term in research development. In the 1970s for example, this term was occasionally used in cases that involved ways in which forest resources should be used. Nowadays, this term is used to resemble the meaning of ‘long-term’, ‘durable’, ‘sound’ or ‘systematic’ (Filho, Manolas, & Pace, 2009). Teacher education worldwide has been incorporated with the need for sustainability ages ago. Badjanova, Ilisko and Drelinga (2014) elaborated sustainable pedagogy as challenges in finding the best way to live in a harmony way with the ecological systems. Among the element of sustainability that had grasped the attention among researchers are ICT, Green Technology, Soft Skills and Sustainable Development (Burmeister & Eilks, 2013; Karpudewan & Ismail, 2008; Khirwadkar & Pushpanadham, 2007; Umar & Jamiat, 2011).

1.2 Background of Problem

TVET, in general is believed to be the sources of skilled workers in the industry and many efforts has been done in improving the social recognition for this profession. However, the status for the vocational teachers and trainers are still not of the high status for this role (Majumdar, 2011; Yunos, Lai, & Hamdan, 2016). Unlike another education stream such as science and medical, vocational education is still considered as a solution for low-achieving students that will only be a worker and as filler in filling the needs of the industries. Therefore, vocational teachers are considered to bear the responsibility of producing workers in the industrial sector who are most reluctant to do research and having a low achievement (Lynch & Ruhland, 2007). Needless to say, asking people to do something they do not want is a challenge itself. Without proper planning, the teaching and learning process in TVET classroom will be ineffective.

Nowadays, there are many discoveries in the educational area for the most suitable teaching and learning model in meeting the need of future perspectives. Khambayat and Majumdar (2010) had even listed several key features that are crucial for 21st Century namely Globalization, ICT Revolution, Sustainable Development, the emergence of Knowledge Worker and Rapid Knowledge Obsolesces. However,

question arouses on the suitability of this current educational model, which mostly are content-oriented. Ornstein and Hunkins (2014) reported that most of the 20th- century curriculum specialists who started as a teacher were tend to move towards content - oriented, emphasizing on core academic discipline. The idea of curriculum design that focuses more on a student, lesson content have not gain wide acceptance in this 20th century. Notably, Khambayat and Majumdar (2010) also stated that the current paradigm of a teacher in teaching and learning that focuses on “content-driven” should be considered as fatal paradigm especially in preparing the students for the 21st Century. This is because the new learning environment of the 21st Century differs from the one we are familiar and at the same time causes teachers to cope with many more uncertainties. In the meantime, Ratnavadivel, Hoon, Salih and Low (2014) had reported that the students’ school experience was perceived to be out of sync with the rigor of living and working in the 21st Century.

In term of the teacher preparation (and training), Schroder (2013) noted that the purely theory-orientated university education and training of teaching staff are not sufficient to cope with the new economic challenges. Since the vocational pedagogical itself aim of knowledge, skills, and attitudes, having fully theory-oriented education will not help in achieving this aim. Therefore, new pedagogical concepts are necessary within the teaching and learning platform of the TVET institution as a whole. These new concepts need to cooperate with all the 21st Century requirement and possibilities.

Due to the development of technology, students are having unlimited access to information and teachers are no longer the sole sources of information. This had caused the shifting of the role of teachers and the teaching and learning environment. Up to the present time, teachers are expected to create a new, flexible and open learning environment in the ICT era with an interactive, experiential and multimedia- based delivery system (Majumdar, 2011). The conventional environment of learning is not conducive with the development of the technologies.

Issues arise on the capability of the teachers to handle such technologies. The increasing specialization or knowledge intensification in certain technologies requires teachers to have qualifications and competencies, which are reported to be not adequate (Grollmann & Rauner, 2007). Not only that, current research had reported on the dilemma of TVET teachers in handling this new development of technologies that requires them to upgrade their performance (Obwoye, 2016). On the other hand, a positive attitude of TVET teachers towards ICT in the classroom has been reported by

Alazam, Bakar, Mohamed and Hamzah (2014). However, having a positive attitude without knowledge will not contribute in the implementation of ICT in the classroom.

On the contrary, Cranton (2012) reported that it can be a stress trigger for the teachers to be asked to try new things proposed by the colleges. It shows that having new technologies for teaching and learning can give pressure to the teachers thus prevent them from doing their job better. This can be a disadvantage to the students as well. Teachers also show different perception towards ICT in the classroom among themselves. Meanwhile, in Sub-Saharan Africa classroom, the challenges regarding ICT is not only related to the shortage of ICT-competent teacher, but also the training program for ICT often ad-hoc and short term (Hooker, Mwiyeria, & Verma, 2011).

Facing the fact of having to integrate this ICT in the classroom, the willingness and readiness of the teachers are questionable. Majumdar (2011) stated that there is at least one generation gap between learners and teachers. Since the students grew up in this technology era, they are more comfortable with this technology compared to the teachers who grew up when technologies were still in its developing state. Allen, Bracey and Gavrilova (2012) describe today's learner as technology native and information savvy. They are more adapted and comfortable in using technology.

Meanwhile, questions have aroused on the readiness and preparation of TVET teachers in facing global challenges. Even though there are reports stated that the performance of TVET student did not meet the industrial requirement, Chua and Jamil (2012) found that the professional knowledge of TVET instructors in Malaysia was at a satisfactory level. This means that instructors are having adequate knowledge and attitude on the related subjects. This shows that the knowledge transfer between teachers to students did not happen fluently. To transfer knowledge, teachers require different skills and knowledge. As been described by Wang (2012), those with occupational knowledge, skills, and attitudes may not be necessarily excellent instructors. There are specific knowledge, skills, and attitudes that instructors need to have to excel in this profession. Chua and Jamil (2012) had listed several factors that influenced professional knowledge of TVET instructor namely technological factor, socio- psychological factor and student factor.

On the other hand, Cranton (2012) reported that as for professional development, community college teachers need to have the opportunity to talk about teaching with colleagues and others as to strengthening their personal growth and development. It means that teachers need to have a good social life among them as

support and motivational drivers. This is crucial as UNESCO (2016) had stated that the absence and/or inadequacy of continuous professional development is one of the key contributing factors towards the low quality of learning outcomes. Thus, TVET teachers must be provided with the opportunity for continuous professional development as well as international partnership and foreign exchange to further develop their skills as proposed by UNESCO (2018).

In the meantime, students need to be encouraged to take more part in the teaching and learning process. It is the role of teachers to drag learners to be part of it. Therefore, the teacher-centered paradigm must be shifted to a learner-centered paradigm. Accordingly, Hassan (2010) had as well mentioned that the teaching and learning method for the 21st Century must be student-centered. This definitely will change the role of teachers within the classroom towards becoming a facilitator for the students. Badjanova and Drelinga (2014) also, in the same way, believed that the transmissive form of teaching needs to be changed with a transformative and experiential form of learning to find new ways that could change people for a better future.

In this educational program, the players are not only limited to teachers and students. Several other players or stakeholders influenced the development and performance of the program. Isaacs (2017) stated that to improve the perception of TVET, it needs to start with the studies into the stakeholders – the learners, graduates, employers, trainers, parents, and policymaker. The need to studies this stakeholders were mention in the majority of the national plan that involves the government, institutions, and industries (Ministry of Education Malaysia, 2011, 2015b; Ministry of Higher Education Malaysia, 2018). Thus, it is important to identify the correct roles and needs for each of the stakeholders. Problems that relate to the stakeholder also have been studies worldwide. The industry, for instance, are facing issues such as bullying during the apprenticeship (Riggall *et al.*, 2017), lack of understanding between the industry and institution and lack of industrial experts that can cater both the academic and skills aspect (Zaytseva, Lationova, Zhukov, & Pervunin, 2017) and irrelevant role of industries towards postgraduate program (Frick, Mckenna, & Muthama, 2016). These issues need to be focus on so that the national plan for TVET can be achieved.

In this better future, the certain requirement of education, in general, had altered the role of teachers to not only focus on the content delivery but also to be able

to develop the soft skills of the students. Ornstein and Hunkins (2014) reported that most curriculum development models tend to ignore this soft skills aspect such as attitudes, emotions, feelings, and belief that are linked to teaching and learning since it is considered to be not easily observed, measured or controlled. The process involves more in knowing the field. Ministry of Education Malaysia, (2011) believed that the participation of academician who is expert in teenage psychologies and pedagogy is one of the critical factors in the successes of the curriculum for vocational college implementation.

Therefore, teachers must equip themselves with the soft skills so that the teaching and learning process may achieve its objectives, for whatever it is. Agreeing with this, Allen *et al.*, (2012) stated that TVET teachers in facing the 21st Century challenges are required to serve as a catalyst of change by encouraging the classrooms of open dialogue and as well as developing the ability to effectively and efficiently use online communications among the students. They continue the argument by stating that TVET teachers need to strive in identifying, exploring and utilizing research-based methods available to support the process of developing the professional expertise of learners.

Different scenario relating to money and teacher education programme is happening in Nigeria. Due to the lack of teacher education institutions, the demand for admission in this program is relatively higher than the government could supply. It is reported only 22% of qualified candidates had access to the programme. This had created a negative competition in accessing this programme such as fraud, intrigue, and lobbying (Ikoya, 2013). Oppress of the minority group also been stated as one of the side impacts of this negative competition. The research had suggested for more teacher education institutions established in Nigeria to cater to this disparity in access and encourage more qualified candidate to admit this programme. It is also noted that the social problems among teens in Nigeria can be solved through this teacher education programme since it can remove them from the streets, minimizing community and regional conflict thus develop a sustainable nation and global peace (Ikoya, 2013).

In due time, Malaysia in its quest of mainstreaming TVE in the educational perspectives needs to seriously address the problems related to this field which a few has been discussed above. With this intention, the 10th National Plan had highlighted that TVET teachers are required to be more effective with high quality. Then, in the

latest National Plan, the 11th National Plan that will take place from 2016 till 2020, the professional development of TVET teachers is also emphasized as part of the government effort to enhance the quality and delivery of TVET program which will increase the employability of TVET graduates (Economic Plan Unit, 2015a). This indicates the importance of the quality and performance of TVET teachers in the development of TVET future for Malaysia. Nevertheless, the TVET-TE Program itself must able to fulfill the requirement of the National Plan.

Furthermore, the various effort done by the Malaysian Government in improving TVET is indeed on par with what fourth Prime Minister of Malaysia, Tun Dr. Mahathir Muhammad had mentioned in his speech regarding Vision 2020:

“The sixth is the challenge of establishing a scientific and progressive society, a society that is innovative and forward-looking, one that is not only a consumer of technology but also a contributor to the scientific and technological civilization of the future” (Economic Plan Unit, 1991).

Tun Dr. Mahathir Muhammad elaborated the speech by mentioning that these challenges should not be the main priorities in the country's development, it should instead be the guiding point for current issues to be integrated with. For that reason, restructuring TVET-TE Program is necessary, if not a must. This is to make sure that the young generations can fully utilize the technology for the development of the country.

Concerning this, The Strategic Plan of Vocational Education Transformation by the Ministry of Education Malaysia also emphasized the need to transform the vocational system to support the development of the country towards becoming develop country with high income. This is mention in one of the Vocational Education Transformation concept. Under the 5th strategic of the Strategic Plan, the development of human resources within the Vocational Education has been highlighted in the 5th initiative which is to transform the organization of Vocational Education. This may be done through the 10th action that focusing in strengthening the Vocational Education human resources through training (Ministry of Education Malaysia, 2011).

Accordingly, the TVET-TE Program needs to be revised so that the training provided for the future TVET teachers may be able to help the country to achieve its mission and vision to be a developed country with high income by providing high-

quality TVET teachers. This at the same time will revamp the perception of the opportunity what TVET may provide especially economically. The Malaysian Education Blueprint (Higher Education) also stated the need for the country to move the higher education system from a primary focus university education as the sole pathway to success towards the equal valued pathways between academic and TVET where TVET is also considered as a pathway to success (Ministry of Education Malaysia, 2015b). It is also as an effort to fulfill the National Education Philosophy in producing a teacher that is intellectually, spiritually, emotionally and physically balanced and harmonious (Ministry of Education Malaysia, 2015c) that is conjunction to the requirement of the 21st Century. Within all these policies, changes in the policy can be seen happen rapidly in recent years which according to Somekh, Lee and Ahmad (2011) could be disruptive and ushering in new demands as well as new opportunities. The unstable educational system leads to confusion within the teaching and learning process.

On the other hand, Ratnavadivel, Hoon, Salih and Low (2014) had reported that the existing teacher education standard does not meet the international standard as a student cannot perform in the international assessment. With the emergence of the international student-ranking list, there is a need to improve the Malaysian educational quality so that our graduates can survive at the international level. Therefore, teachers once again play a vital role in producing international quality approved students. As within the nation itself, the diversity of the population had also created a gap in education outcome, which challenges the teacher to be more universal and versatile in handling their respective students. These international lists of the university also had sparked an initiative to improve the education quality including in TVET pathways. The government had asked for various efforts in improving the rank of local universities in the international university rank (Economic Plan Unit, 2015; Ministry of Education Malaysia, 2015a). This can help in improving the quality of local education holistically.

Correspondingly, frameworks on Teacher Education program have been developed worldwide. However, there is deficiency here and there for each framework in fulfilling the 21st Century needs. For instance, a framework developed by ASEAN University Network (2013) had six elements for teaching and learning element including environmental health and safety standards as one of the elements which do not exist in the framework proposed by Yunos *et al.*, (2010) namely the transnational

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